

Claims

1. A ball bearing actuation mechanism for a vending machine, said mechanism comprising:

(a) a housing having an interior chamber, outlet and overflow discharge openings communicating with said interior chamber, and an inlet passage communicating from exteriorly of said housing to said interior chamber so as to permit deposit of ball bearings one-at-a-time into said interior chamber via said inlet passage;

(b) a gauge wheel rotatably mounted in said interior chamber of said housing below said inlet passage and adjacent to said outlet and overflow discharge openings of said housing, said gauge wheel being circular in shape and having a peripheral groove defined about a peripheral portion of said gauge wheel;

(c) a retainer wall having a curved configuration and stationarily mounted to said housing in said interior chamber adjacent to and spaced from said peripheral groove of said gauge wheel so as to overlie said peripheral groove and form a channel between said peripheral groove and said retainer wall which extends between said inlet passage and said discharge outlet opening of said housing, said peripheral groove having a predetermined length preset to receive a preset number of ball bearings in single file fashion therein when the ball bearings are deposited into said interior chamber via said inlet passage such that any ball bearings above said preset number deposited into said inlet passage of said housing will divert to said overflow discharge outlet of said housing; and

(d) means for rotating said gauge wheel in a predetermined one direction extending from said inlet passage to said discharge outlet opening of said housing in response to deposit of ball bearings equal to said preset number thereof in said channel such that the preset number of ball bearings move with said gauge wheel and discharge from said channel through said discharge outlet opening in

said housing.

2. The actuation mechanism of claim 1 wherein said means for rotating said gauge wheel includes:

an elongated shaft rotatably mounted to and extending through said housing and across said interior chamber thereof, said gauge wheel being disposed over and fixedly mounted to said shaft for undergoing rotation with said shaft; and

a handle attached to one end of said shaft at one exterior side of said housing, said handle for gripping and turning to rotate said shaft.

3. The actuation mechanism of claim 2 wherein said means for rotating said gauge wheel further includes:

a ratchet wheel fixedly attached on another end of said shaft opposite said one end thereof and at another exterior side of said housing opposite said one exterior side thereof;

a mounting plate affixed to said another exterior side of said housing; and

a spring-loaded pawl pivotally mounted to said mounting plate and disposed adjacent to said ratchet wheel so as to engage said ratchet wheel such that said ratchet wheel, handle, shaft and gauge wheel can only be turned in said one direction once said handle, shaft and gauge wheel have turned sufficiently to bring said pawl into engagement with a first notch on said ratchet wheel which then prevents reverse rotation of said ratchet wheel, handle, shaft and gauge wheel.

4. The actuation mechanism of claim 2 wherein said housing includes:

upright front and rear walls;

upright opposite side walls extending between and connected to said front and rear walls; and

a horizontal bottom wall extending between and

connected to said front, rear and side walls such that said walls of said housing together form said interior chamber.

5. The actuation mechanism of claim 4 wherein said shaft extends transversely through said front and rear walls of said housing.

6. The actuation mechanism of claim 4 further comprising:

5 a hopper supported on said housing between upper portions of said front and rear walls thereof and defining said inlet passage.

7. The actuation mechanism of claim 1 further comprising:

5 an overflow collection receptacle disposed adjacent to said overflow discharge opening of said housing for receiving in said receptacle any ball bearings above said preset number thereof deposited into said inlet passage of said housing and exiting said interior chamber through said overflow discharge opening of said housing.

8. The actuation mechanism of claim 1 further comprising:

5 means for preventing rotation of said gauge wheel until the number of ball bearings equal to said preset number thereof fill said channel.

9. The actuation mechanism of claim 8 wherein said means for preventing rotation of said gauge wheel is a spring-biased detent mounted adjacent to an end of said retainer wall and extending therefrom toward an inlet end
5 of said peripheral groove in said gauge wheel.

10. The actuation mechanism of claim 9 wherein said detent includes:

a finger mounted adjacent to said end of said retainer

5 wall and extending therefrom toward said inlet end of said
peripheral groove in said gauge wheel, said finger being
spring biased to move toward said peripheral groove; and
a rod-like element affixed transversely across an end
of said finger so as to ride on opposite peripheral edges
10 of said gauge wheel running along opposite sides of said
peripheral groove such that if said gauge wheel is rotated
before said peripheral groove is filled with said preset
number of ball bearings said element on said finger will
ride downward into notches formed in said peripheral edges
15 of said gauge wheel at said inlet end of said groove and
make abutting engagement with a transverse shoulder formed
by said notches whereby such engagement prevents further
rotation of said gauge wheel without said preset number of
ball bearings filling said peripheral groove so that said
20 gauge wheel must then be reverse rotated to retract said
element on said finger from said notches and away from said
shoulder to provide sufficient space to allow additional
ball bearings to enter said peripheral groove until said
preset number of ball bearings fill said peripheral groove
25 whereupon rotation of said gauge wheel in said one
direction the last one of the ball bearings filling said
peripheral groove will cause said element to ride over the
last one ball bearing and said shoulder so as to not
prevent further rotation of said gauge wheel which will
30 carry said preset number of ball bearings in said channel
and along said retainer wall resulting in the ball bearings
being dispensed one at a time from said discharge outlet
opening of said housing.